

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous versions, and listings, of claims in the Application.

Listing of Claims:

Claims 1-9. (Cancelled).

Claim 10. (Currently amended) A method of generating update packages for updating software in a mobile electronic device, the method comprising:

retrieving an existing version of code and a corresponding updated version of the code, the existing and the updated versions of code comprising program components each comprising a plurality of program instructions;

determining which program components in the existing version of code to ~~modify~~ modify, using the existing version of code and the updated version of code;

generating an update package having modules corresponding to those program components to be modified; ~~and~~

generating an associated reference lookup table having entries corresponding to those program components to be modified, each entry associating a symbolic reference in the updated version of code with a memory address in the mobile electronic device;
and

communicating the reference lookup table to the mobile electronic device, to enable the mobile electronic device to resolve the symbolic references in the program instruction to a memory address in the mobile electronic device, during program instruction execution.

Claim 11. (Original) The method according to claim 10, wherein determining which program components to modify comprises determining program components to be one of left unchanged, deleted, added, and modified, and wherein program components left unchanged are not included in the update package.

Claim 12. (Original) The method according to claim 10, wherein the update package and the associated reference lookup table modifications are adapted for transfer to an embedded system in the electronic device as one of a single program unit and two different related program units transferred when the electronic device is updated.

Claim 13. (Original) The method of claim 10, wherein the update package is adapted to facilitate update by an update agent in the electronic device.

Claim 14. (Original) The method of claim 10, wherein the update package comprises information for adding new modules, and further comprising:
replacing existing modules with new modules; and
updating the associated reference lookup table.

Claims 15-17. (Cancelled).

Claim 18. (Currently amended) ~~A mobile electronic device having an embedded system employing a component architecture platform (CAP) framework, the device comprising:~~

a processor for executing program instructions resident in one or both of primary memory and secondary memory in the mobile electronic device;

a reference lookup table management unit employed by the processor to, at least, resolve a symbolic reference in a program instruction to a memory address in the one or both of primary memory and secondary memory, during program instruction execution;

~~primary memory and secondary memory;~~ and

at least one reference lookup table resident in memory accessible by the reference lookup table management unit, the at least one reference lookup table comprising one or more entries each associating a symbolic reference representing a location within a program component, to a memory address in the one or both of primary memory and secondary memory.

Claim 19. (Currently amended) The device according to claim 18, further comprising:

non-volatile memory;

volatile memory; and

software resident in at least a portion of one or both of primary and secondary memory.

Claim 20. (Currently amended) The device according to claim 18, wherein the processor retrieves program instructions, resolves symbolic references employing the at least one reference lookup table and executes program instructions retrieved from ~~at least~~ the one or both of primary and secondary memory.

Claim 21. (Original) The device according to claim 20, wherein executing a program instruction comprises performing at least one reference lookup, the at least one reference lookup using symbolic names for one of operands, modules, method names, functions, and components, and wherein the at least one reference lookup may be resolvable into an address at program runtime.

Claim 22. (Currently amended) The device according to claim 18, wherein ~~at least~~ the one or both of primary and secondary memory comprises FLASH memory.

Claim 23. (Original) The device according to claim 18, wherein the at least one reference lookup table comprises a local reference lookup table mapping at least one of local variables, functions, and methods.

Claim 24. (Original) The device according to claim 23, wherein modifications to program instructions are reflected and recorded in the local reference lookup table.

Claim 25. (Previously presented) The device according to claim 24, wherein modifications reflected in the local reference lookup table are also reflected in a non-local reference lookup table.

Claim 26. (Currently amended) A computing environment with system comprising:

a processor executing program instructions from a ~~pipeline~~ pipeline, the processor comprising:

storage having resident therein a reference lookup table ~~that is capable of~~
~~being~~ populated with symbolic references and corresponding program memory
location values; and

a reference lookup table management unit that ~~is capable of managing~~
manages the reference lookup table, and ~~resolving~~ resolves symbolic references
in the program instructions into program memory location values before
population into the pipeline, wherein the processor ~~is capable of retrieving~~
retrieves the program instructions and resolved symbolic references and
~~executing~~ executes the program instructions using the program memory location
values.

Claim 27. (Currently amended) The computing ~~environment~~ system according to claim 26, wherein location values in the reference lookup table are one of memory addresses and offsets.

Claim 28. (Previously presented) An updateable mobile electronic device employing a component architecture platform (CAP) framework, comprising:

at least one non-volatile memory for storing one or both of executable code and data;

firmware resident in the at least one non-volatile memory, the resident firmware arranged in a configuration of one or more updateable independent modular firmware components;

update agent code in the at least one non-volatile memory, the update agent code, during operation, processing one or more update packages received by the mobile electronic device to produce one or more updated independent modular firmware components for insertion into the resident firmware, the one or more updated independent modular firmware components enabling associated new feature functionality in the updateable mobile electronic device; and

wherein insertion of the one or more updated independent modular firmware components into a second updateable mobile electronic device having resident firmware enables in the second updateable mobile electronic device the new feature functionality associated with the one or more updated independent modular firmware components.

Claim 29. (Previously presented) The updateable mobile electronic device of claim 28, wherein any one of the one or more updateable independent modular firmware components is updateable by itself.

Claim 30. (Previously presented) The updateable mobile electronic device of claim 28, wherein resident firmware in any of a plurality of the updateable mobile electronic devices may be updated using the one or more updated independent modular firmware components, without regard to existing configurations of updateable independent modular firmware components in the plurality of updateable mobile electronic devices.

Claim 31. (Previously presented) The updateable mobile electronic device of claim 28, wherein executable code instructions use symbolic address references.

Claim 32. (Previously presented) The updateable mobile electronic device of claim 31, wherein the symbolic addresses are resolved to physical addresses using a reference lookup table.